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GLEANINGS A JOURNAL DEVOTED TO BEES, AND HONEY, AND HOME INTERESTS. **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. H. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

VOL. XXIX.

NOV. 1, 1901.

No. 21.



HEARTY THANKS, Mr. Editor, for recognizing the demand for a three-ply hive-cover with dead-air space. Now we're good friends again—for the present.

"ORDINARY queen-cells," as the designation for those intended for swarming or superseding, and "emergency" for the other kind that are post-constructed, is the suggestion of E. E. Hasty, in *Amer. Bee Journal*. Good. [So say I. I am glad you agree.—ED.]

CURE FOR CORNS.—After a warm foot-bath, apply to the corn a plaster of beeswax, or, still better, of propolis, spread upon paper or cloth, and leave undisturbed for three or four days. If the corn is not then easily removed, repeat the process.—*Centralblatt*.

A GOOD DEAL of previous observation, and closer observation this fall, lead me to believe that the *rule* is that queens continue laying for a time after workers cease rearing brood in the fall. At least it is a very common thing to find eggs and sealed brood present, but no unsealed brood.

MR. EDITOR, when you tell a story, why do you leave us partly in the dark? You tell us, p. 823, that when B. Franklin chased you you peddled with all your might; but please tell us whether you peddled honey, bee supplies, or what. [That was a typographical error. It should have been pedaling. The "goak" is on us.—ED.]

F. C. HOLBROOK relates in *Amer. Bee Journal* that he lost many pear-trees from pear-blight, among others a seedling that never had a blossom. He wants to know how the bees could be to blame in the latter case. [Just what I thought when I saw several thousand sprouts that had never been in bloom in California, all struck down by the blight.—ED.]

IN MOVING BEES, I formerly used a wire-screen cage at the entrance. As said on p. 816, "It is surprising what relief such an arrangement gives to the strongest hive;" but unless the cage be securely fastened it may come off, and then the whole hive will come pouring out of the hive, especially if a strong hive be in an old, rotten hive. Much better, however, than such a cage, it is to have a bottom-board two inches deep, with an entrance the same depth. It is more quickly and easily closed than with the cage. All that is needed is a single piece of wire cloth with folded edges, just large enough to close the entrance, with a stick nailed to the hive across the upper part of the wire cloth.

REPLYING to your question, p. 813, Mr. Editor, it would be a troublesome thing for me to tell in all cases in September whether a colony has a good queen. In some cases there will be no eggs or unsealed brood present, and it is unusually difficult to find the queen. If I do find her, how can I know she is a good queen? [What Doolittle meant, I think, was that, if a colony had an inferior queen, as judged by its past record, or if a queen was past the prime of life, that the month of September was a good time to remove all such, and put in their stead young, vigorous mothers; that is to say, if the inferior queens have not been removed up to that time, in order to save the colony from succumbing to the rigors of winter, a good queen should be substituted.—ED.]

WHAT IS SAID by A. C. Miller and the editor, p. 819, raises some questions. Is it certain that sudden cessation of laying hurts a queen? Is there really any sudden cessation? Does not the queen keep right on dropping her eggs when caged? Does not all the harm come from mailing her while still heavy? Perhaps the whole thing may be something like this: Several men are sent on a railroad train, each one to stand in the middle of a car, having bound on his back a heavy burden. One gets several falls, and is badly hurt; another goes

through unhurt, a third strikes on his head and is killed, and so on. Without the burden, each one might have gone through safely. Moral: Cage your queen a day before mailing. [All of these points are worth consideration, but I do not believe we can give a positive answer to any one of the questions, with our present knowledge.—ED.]

I'M AFRAID, Mr. Editor, that you and I do not attach the same meaning to the word "incidental," or you would not object to "incidental proofs" that 15 days are enough for the development of a queen. To go by the dictionary, proofs "happening or coming without regularity or design" may be as positive and emphatic as those coming in the course of a carefully planned experiment. Such proofs I have had, and they are none the less reliable because incidental. [I attached exactly the same meaning that you do; but my point was this: That if these proofs happened to come along without regularity or design, you, the observer, would not be watching the matter as closely as if you had set in motion a train of events to prove or disprove the proposition. We may see a thing happen a thousand times, but learn nothing from it, either as to its cause or prevention; but, however, I accept the 15 days, as I think at present the balance of evidence is in favor of that length of time rather than in favor of 16.—ED.]

AFTER TRYING for years to get people to say "colony" when colony was meant, GLEANINGS has given up being so hide-bound, and now allows "stand" for "colony," and on page 816 "hive" is used for "colony." Of course, "swarm" for colony is equally admissible, and is, in fact, used, p. 817. It gives variety to have several names for the same thing and several things for the same name. It's a good deal of trouble always to choose carefully the right word, and it will be a good deal easier if any old word will do. Then there will be a pleasing variety in the various ways in which the same article will be understood. [If you had to read all the proof that goes into a bee-periodical, I am afraid you would find it difficult to *always* substitute the word "colony" for "swarm." But for the sake of avoiding repetition our plan is to allow the use of the word "stock" or "stand" for "colony;" but we always aim to make a discrimination between "swarm" and "colony." Certainly, doctor, you would not compel a farmer always to use the word "cattle," and never say "stock," as applied to the same class of animals. Indeed, the great power of the English language rests in its choice of words.—ED.]

DOOLITTLE, in *Amer. Bee Journal*, speaks of 108,000 bees from one queen being in a hive at the same time, as if it were an easy possibility. I commit him to the tender mercies of the editor of the bee-journal called GLEANINGS. [I have just consulted Doolittle's article, and I can not make out that its writer considers 108,000 bees as within

the range of "easy possibilities" for one colony. To quote him exactly, he says, "We *can* have in that hive, barring accidents, if the hive is properly managed, 108,000 bees." Italics mine. What he means, I take it, is that such a number is a *possibility*, not as if it were a common or "easy possibility," as you put it. Say, doctor, those glasses of yours are slant-eyed—eh? Now, I will make you a proposition. If you can find in any one of your eight-frame colonies next summer—yes, we will make it a two-story eight-framer, 100,000 bees, by actual weight, shaken off the combs into a box, and weighed, and counting 5000 bees to the pound—well, I will give you the best laying queen, outside of our best breeder, we have in our apiary. Perhaps 100,000 bees might be crammed into a two-story hive with comb and brood; but in the ordinary course of events, I do not believe one will find more than half that number as the progeny of one queen. Understand, I am giving you a pick of your *whole* apiary.—ED.]

"ARE THE DRONES from a queen that has never met a drone virile?" is a question suggested by the editor, p. 778. Dzierzon holds that they are. On p. 224 of *American Bee Journal*, Vol. I., the baron of Berlepsch gives a *posteriori* proof that is *almost* conclusive. On p. 246 of the same volume is given the testimony of no less an authority than Prof. Leuckart, which, I think, settles the question. He says: "Those originating from the eggs of unfecundated or drone-producing queens are, as I have ascertained, as perfectly developed and as fully virile as others. So likewise are those dwarf or diminutive drones, which are occasionally bred in worker cells. Nay, even in a drone hatched in a royal cell, though prematurely dead, sent to me by Mr. Kleine, I have unquestionably found seminal filaments and male organs. The case is precisely similar also with drones hatched from eggs laid by fertile workers. Mr. Vogel inserted in a hive of common bees a drone comb containing eggs laid by an Italian worker (which he had seen laying in a queenless stock), and removed the colony to an isolated locality. Italian drones were hatched, and two common queens, fecundated while these drones were flying, producing partly common and partly Italian workers. As there were then no other Italian drones in that neighborhood, those queens must have been fertilized by drones produced from the eggs of the fertile worker." [This ought to be sufficient proof.—ED.]

T. P. Ky.—The statement has been made several times that pure Italian bees are not so subject to the ravages of black brood as are black bees. Beyond this we can give you no information. But if I were in a locality afflicted with that disease I would Italianize as rapidly as possible, as I believe it would pay, whether the yellow bees were or were not immune to black brood.



Summer's reign is almost o'er;
Birds have sought a southern shore;
Leafless trees and meadows bare
Show the work of autumn's air.

In the days of Virgil, and even later, it was generally believed that bees generate spontaneously in the carcasses of oxen—the belief arising, probably, from the fact that bees have been seen around such objects. But it remains for our day to prove that bees sometimes come from a dead horse; and not only bees but honey too. The Richmond *Evening Leader* tells us all about it as follows:

The Lee statue, both horse and rider, has found a new and interesting opportunity for usefulness in these latter days in becoming the home of an enormous swarm of honey-bees. Or, to be more exact, probably of a considerable number of swarms. It is more than likely that the interior of the equestrian statue is well filled with as good honey as ever was found in a Hanover bee-tree.

For some time bees have been noticed in considerable numbers about the small openings at the mouth and nostrils of the horse and the mouth of the rider. More than once considerable swarms have come out of these openings, which are believed to be the only openings to the interior of the statue. When it is remembered that the statue of both horse and rider is merely a shell less than a half-inch thick it will be at once seen what a commodious and comfortable home and retreat for honey-gatherers the interior of the statue provides.

It is not known whether the openings to the statue are large enough to allow sparrows to enter. If so, the statue is probably partially full of the trash which they collect to make their nests. As sparrows can get through a wonderfully small opening this is quite possible; but no sparrows or other small birds have been noticed going in or out of the statue, as has been the case with the bees. The latter have certainly found a safe place for gathering their winter's supplies, and one in which they will not and can not be molested. It will give an added interest to the statue to the many who visit it, to know that it is probably well filled with honey of the best make and reputation.

THE MODERN FARMER.

I fear many do not know what a good journal Mr. E. T. Abbott is sending out. In the last number received he has an editorial on "Anarchy," which, it seems to me, covers the whole ground and goes clear down to the cause of this evil. It will be seen that Mr. Abbott believes there are many anarchists who do not train under a red flag. He says:

The natural home and congenial breeding-place of this vile and perverted monster is the crowded quarters of large cities. Anarchy is bred in saloons, in brothels, in gambling-dens, in the wine-rooms, and even in high society where vice is condoned and violations of law and order are winked at because the culprit belongs to "our set."

Whoever violates a known law, whoever winks at such a violation of law, is sowing broadcast the seeds of anarchy. The police board that winks at the open saloon door on the Sabbath day is helping to breed anarchy. The policeman who is sworn to execute the law, and then winks at these violations on the plea that it is a "side door," or a "back door," is breeding anarchy many times in spite of his "side door" plea. It was said of old that all roads lead to Rome. All doors into a Sunday saloon lead to perdition, and it matters but little to the man who finds himself in hell

by what door he made the start. "But these are bad laws," we are to d. Ah! there's the rub. Any law which men wish to violate is a "bad law," to hear them tell it; but the violation of any law creates a disrespect for law, and this is the beginning—nay, is anarchy. Every man who disregards law, whether it be in the name of capital, or in the name of labor, in the name of an individual or in the name of a corporation, has started on the road which leads to anarchy.

The only improvement on the above would be to say that a Sunday saloon is just as good as a Monday one.

THE BEE-KEEPERS' REVIEW.

The issue for October is a gem, and equal to any that Mr. Hutchinson has ever printed. The contributed articles are of a high order, especially one from F. B. Simpson, on selection in breeding. The presswork on the *Review* is as good as that in our big magazines, and that is what enables the editor to give such a fine half-tone engraving in each issue. Mr. Hutchinson does his own photographing; and in that line of work he well deserves the title of "artist."

As I was one of O. L. Hershiser's guests while in Buffalo, I take pleasure in copying the following:

Mr. O. L. Hershiser showed me, at the Pan-American, a new style of glass jar that he had just gotten up for putting honey on the market. It is of flint glass, and square, like the Muth jar; but instead of being closed with a cork it has a screw cap after the style of the Mason fruit-jar. There is a cork lining inside the top of the cap, which makes the whole thing self-sealing. The cost is only a trifle more than for corks, tin-foil caps, and waxing, and, considering the lessening in labor, is really about as cheap. Mr. Hershiser is making arrangements to have this style of jar put upon the market.

Mr. Hershiser takes a keen interest in bee-keeping, and a relation of some of his experiments went far toward keeping me from feeling lonesome.



NATURAL SWARMING AND AUTOMATIC HIVING.

Can the Latter be Counted a Practical Success?

BY F. H. CYRENIUS.

During the past fifteen years it has been my study and determination to perfect a device to allow bees to swarm, and safely hive them without the necessary time in watching and risk in running away. Now that I have succeeded to my entire satisfaction I feel in duty bound to offer the same to my fellow bee-keepers, believing they will appreciate my efforts. My bees are all in outyards run for comb honey, and allowed to swarm as they please. I have been unable to visit them oftener than once a week, and during these visits it was a great pleasure to find those which had cared to swarm securely hived by the use of the hiver.

Some years ago, while working at crude

hivers, I discovered that, to cage a queen with a zinc entrance-guard beside her own hive, would secure part of the swarm, at least, every time, and they would enter the new hive and begin work with as much certainty as though they were hived by any other process.

To test this plan, remove a queen from her colony and cage her with an entrance-guard in a new hive beside the old one, and shake in front of the hives about the number of bees that would naturally go with the first swarm, and see how quickly you will have a new swarm established and working. This is just what the hiver does; and in less than two hours, treated as above, I have observed both eggs and honey deposited in combs to receive them, which should always be provided if possible.

After trying numerous experiments of this character it was conclusive to me that the only remaining feature was to be sure to get the queen thus caged at the issuing of the swarm. As a result, the swarm would be securely hived by the returning plan, and with much more certainty than by any other plan of natural swarming.

My latest hiver affords all possible inducements to lead the queen through the large cone, thus caging her directly in front of the new hive as though she were caged with an entrance-guard.

An important offset in the zinc leads the queen directly to the cone; the end of the hiver over the old hive-entrance is darkened by a shutter, and the end over the new hive is provided with light through wire cloth, all of which are required to produce the best results. When the queen is thus caged, hiving is assured.

To secure convenience in manipulating and adjusting the hivers, the bottom-boards should be placed on double stands about three inches apart, and project about four inches beyond the entrance of the hives, which furnishes a good support. In order to place the empty hive on *either* side of the old hive, the hivers are made *reversible*, the cone always pointing toward the empty hive.

The hivers are securely held in place by a wire spring passing between the hives, one end against the back of the old hive, and the other end over the front and center of the hiver.

The plan I prefer for comb honey is to have all hives arranged on double stands in early spring. At the beginning of the honey harvest one hive (the weaker one) is removed from each stand to another double stand (two on a stand), each of which is to be worked later, as those remaining on the old stand; i. e., if the swarming season is not over when they have gained sufficient strength to work in boxes, and swarm. The remaining hives at once receive the field bees from the hives removed, and boxes are at once given them.

In about one week preparations for swarming may be expected when an empty hive is placed beside the old swarm in the

place made vacant by the one previously removed.

The hiver is now placed in position, being sure that no bee can enter either hive without passing through the zinc.

To empty the hiver of dead drones as often as occasion may require is all the attention required until swarming is over.

When the swarm issues and is hived, about half of the bees will return to the old hive. This is not objectionable, as they are just as valuable in the old hive to store in the boxes as though they remained in the new hive.

Any time within eight days after swarming, the unfinished boxes are removed from the old to the new stand, as also the working force, by any plan best suited to the bee-keeper. He may exchange hives, or he may shake the larger part of the bees off the combs of the old hive in front of the new swarm. He may remove the old hive to a new stand, or divide into nuclei, or use any manipulation to prevent second swarming, and build up in good shape for winter.

I have much confidence just now in a simple chute which covers the entrance of the old hive, and extends to the edge of the entrance of the new hive with a passageway for the bees, so that, returning from a fly, they unite with the new swarm, making the new swarm very strong through the honey-harvest, and making the old one too weak to send out a second swarm. The chute, of course, is to be removed before the young queens wish to fly, or when enough bees have been exchanged to accomplish the desired result. If you wish these hivers to hive your bees successfully, don't allow an accumulation of dead drones to *remain* in them. Don't allow your hives to contain much drone comb. Mr. Doolittle says, "I never knew a swarm to have too few drones to be profitable." Don't use the hiver until the approach of the swarming season. Don't leave it on long after the swarm has been hived and working. Don't remove it before they begin work, and the danger of running away is over.

And now, kind reader, if you follow these directions carefully you will find the above a pleasing way of hiving your bees and securing nice comb honey, besides the satisfaction and gratification of saving the absconding swarms.

Oswego, N. Y.

[Complaint has been made once or twice that I have, in a footnote, weakened or entirely nullified the force of an article. When I have done so, however, it was because I *believed* I was fulfilling a duty to our readers. In this particular case I do not like to throw cold water on the automatic hiving described by Mr. Cyrenius; but as I have had quite an extended experience in the very things he speaks of, I feel it my duty to utter a word of caution.

As our older readers will remember, I succeeded in hiving swarms automatically; and at one time I felt quite enthusiastic

over it. I even succeeded to the extent of having automatic-hived swarms store honey in their new quarters. Now, having said all this, as time goes on I am free to acknowledge that automatic hiving, as well as I succeeded in carrying it out, was not a practical success in every sense of the word. It means a double hive-stand, an extra expense; it requires the use of a complicated trap or box made of perforated metal—another expense; it does not save labor as one might expect. If one counts the time necessary to arrange hives on double stands, the further time of finishing up hiving by dumping the rest of the bees that did not go down into the new quarters, as mentioned by Mr. Cyrenius, he will see that labor is not very appreciably economized, if at all. Automatic hiving at best means doing the work over again. About the only thing that can be said in favor of it is that the swarm is taken care of automatically whenever it arrives at the swarming-pitch, independently of the apiarist, who may be absent. But there are other methods of handling swarms, averting them, or controlling them, which I believe to be more economical of labor.

Perhaps Mr. Cyrenius may say that I am talking about one thing and he another—that he has improved on the methods that I used. From his description, and the trap he has sent, I used practically the same principle, and succeeded as perfectly as he. My conclusion is, then, that automatic hiving is possible but not practicable. Mr. E. L. Pratt, now known as Swarthmore, then of Beverly, Mass., devised one or two of the best automatic hivers I ever saw; but I think his conclusions, if I am not very much mistaken, were about the same as mine. Mr. Henry Alley, the veteran queen-breeder of Wenham, Mass., went all over this ground years ago, and he likewise has abandoned it.—Ed.]

DEEP VS. SHALLOW BROOD-FRAMES.

BY F. GREINER.

After an experience of many years with both styles of brood-frames I have at last come to the conclusion that, all things considered, the frame of normal depth gives the best satisfaction in the end. Under shallow frames I include such as are less than 7 inches deep. The Langstroth frame is regarded as of normal depth. For a long time I have been on the fence—undecided which one to choose. Each kind seemed to possess some advantages. I did not want to give up, so I kept using half-stories and full stories, shallow and deep (11 inches) frames in equal numbers. I can get along very well in my home yard with the shallow hives; but when it comes to outyards, give me deep-frame hives every time. In stocking up an outyard I was obliged to make out the desired number with half-story hives partly. I anticipated difficulties at the time, and I found them when it

came to managing the hives. When two or more sectional hives are used as one, the combs or frames of the upper section will generally be more or less fastened to the lower one by bits of comb or otherwise, making it unpleasant to separate the two; then it requires so much more handling of frames to get through a hive just when time is most valuable that it almost seems like wasting it. When using only one shallow chamber as a hive, the bees have a way of boiling over as soon as opened up, which is very annoying.

I used to think that the shallow frame would be very nice for nuclei; but after trying it for years by the side of deep frames it does not suit me nearly as well as the latter. I can find queens much quicker on a deep frame, because they are not so apt to hide in the space between the lower edge of the brood-comb and the bottom-bar of the frame. Particularly is this so with black bees, as they are inclined to run off the comb and take the queen with them. When taking a deep frame out of a hive the bees have not time enough to run off, while with a shallow one they would. I have decided to decrease my shallow-frame colonies gradually, and change back to the deep frame.

The most vicious colony may be handled with ease as follows: Approach the hive, give smoke liberally at the entrance, and close it up. Proceed to drum on the hive for half a minute; give more smoke, and drum again. After a few minutes the bees will have filled themselves with honey. If the hive is now opened up in the usual manner the most difficult operation may be performed without any material resistance on the part of the bees. We learned this trick during the first years of our bee-keeping when driving and transferring bees. Even without smoke it is possible to conquer a colony of bees by this method if one is quick enough to close the hive without any bees escaping. The drumming alone will have the desired effect. FR. GREINER.

Naples, N. Y.

[This is a very knotty question; but most of those who have tested the two depths of frames seem to incline to the shallow depth. Certainly this is true: That if the standard, or L., frame is just as good, we should by all means use it because it is standard. If we can say that of a frame we have advanced one of the strongest arguments we can for it.—Ed.]

RAMBLE 193.

A Visit with Mr. O. W. Stearns, of San Joaquin Valley, Cal.; How he Manages to Work his Apiaries Without any Tools or Building in them.

BY RAMBLER.

I formed the acquaintance of Mr. O. W. Stearns, of Selma, in the San Joaquin Valley, some seven years ago. He then owned some 200 colonies of bees. Upon a recent visit to Selma I found he had increased con-

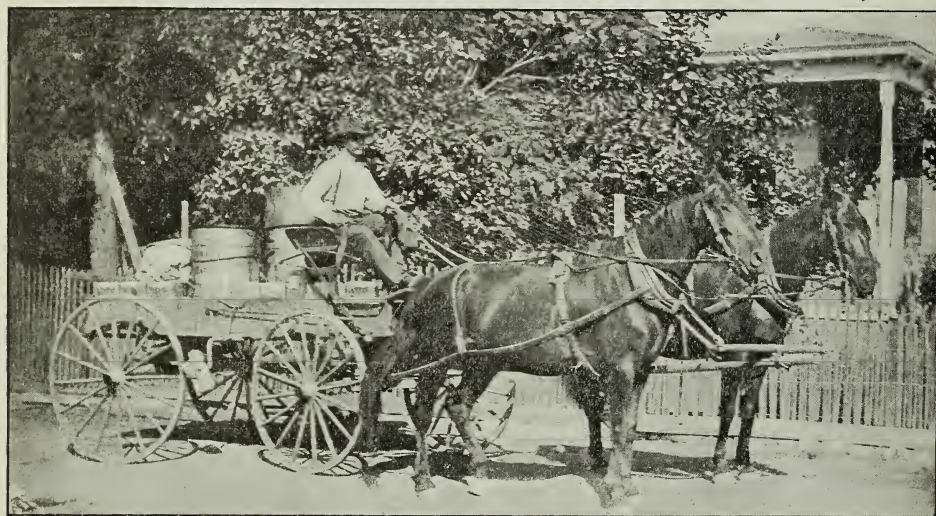
siderably in all directions. In the matter of bees he owns 500 colonies, and was running 100 more on shares. He had moved from an humble cottage on a back street to an elegant new mansion in the fashionable center of Selma, and the house appointments were all new and elegant, and as neat as wax—kept so, of course, by the worthy wife and daughter. An elegant upright piano graced the front parlor, and Kitty evidently knew how to touch the keys for harmony.

An older daughter, and she scarcely out of her teens, married about eighteen months ago, also living in Selma, has fairly upset the whole family; for one fine morning Mr. Stearns found himself grandpa, Mrs. Stearns grandma, and Kitty a full-fledged aunt, and I really believe that is the most wonderful girl baby the world ever saw. Well, babies

he is a veritable trick horse—will open gates and doors, and it is decidedly comical to see him turn on the water from the hydrant when he needs a drink. Both horses will eat honey; and if it is not coming fast enough they will whinner for it; and when bees are stinging mad they have learned to carry themselves with due decorum.

The photo shows Mr. Stearns in the wagon, ready for a start to the out-apiary. Mrs. Stearns is on the veranda to bid him *bon voyage*, and many returns with many loads of sweetness.

Mr. S. has no honey-house and outfit at the out-apiaries, but carries it all in that wagon. On account of its compactness and portability the two-frame Cowan extractor is used. Then there is the tall tank, capacity about 50 gallons. A common galvanized-iron wash-tub is telescoped over the top of



MR. STEARNS STARTING FOR THE OUT-APIARY.

will arrive, and will crow and grow, and I am sure we all wish that the richest blessings may be showered upon them.

Mr. Stearns commenced bee-keeping at the age of 14, in Iowa. He has been in California about 10 years; and although he is now owner of 500 colonies he is not satisfied, but is ready to buy any apiary that happens to be for sale. He manages all of his apiaries, and manufactures quite an amount of foundation, and does nearly all of the work himself, and I propose to give you just a little glimpse of how he does it. His bees are in four or five apiaries, all away from home, one apiary being nearly 20 miles away.

The first essential in the management of out-apiaries is a good lively team, and the photo shows such; and, by the way, the front horse deserves special attention, for

it. This is for cappings. Tent and tent-poles, and several five-gallon tin cans for the honey, complete the load.

Upon arrival at the apiary the tent is erected; and right here allow me to remark that, when the temperature is above 100°, that tent is a fearfully hot place, and Mr. S. contemplates using a portable wire-cloth arrangement with a covering of willow branches. This would be a great improvement over the tent.

The tent in place, the extractor is mounted upon a hive, and held firm with a strong cord or wire from the top, to pegs in the ground right and left. If a super is ripe for extracting, the combs are removed and shaken one by one. No brush is used. If the bees do not all shake off, they are taken to the tent, and escape as they may. No wheelbarrow is used. The super in which

the combs are placed is carried in arms. The reason for not using a wheelbarrow is the trouble of carrying it around; but I am quite sure if Mr. S. would get one of those light Daisy wheelbarrows he would not mind the trouble of tying it to the wagon somewhere.

The uncapping-arrangement is made from two five-gallon tin cans. The side is cut from one; the side and the center of the opposite side cut from another, a piece of wire cloth is put over this center hole, and, when placed on No. 1, it is ready for use, and is a very simple arrangement.

The fifty-gallon tank is mounted on another hive; and when the extractor is full the honey is drawn off into another five-gallon can. One side of this can is cut through

Owing to the honey being so thin, all particles soon rise to the surface, and no strainer is used. There is necessarily much refuse comb and lots of dead bees on the surface, and all of this is taken home in the tank, and strained. The temperature also has something to do with the thinness of the honey. When I observed operations it was up to 106°. Mr. S. has never been troubled with sour honey; but as one of my hobbies is having honey thoroughly strained, I believe Mr. Stearns' would be improved by the use of one.

When the apiary is done in one, two, or three days, according to size of apiary, honey-flow, etc., the whole outfit is loaded into the wagon and taken to the next apiary. Every night the team is driven home with a



ONE OF MR. STEARNS' OUT-APIARIES.

the center lengthwise, and the parts rolled back and over the sides. These rolls of tin serve as handles, and a good grip can be secured, though the hands may be sticky with honey. Mr. S. is not a tall man, and he has to lift that honey nearly as high as he is tall. The two-frame extractor works like a charm. I really believe that, owing to the ease in stopping and starting, and the few whirls it takes to extract the honey, just about as much can be done with it as with a four or even a six frame machine. Will some one get up a competitive trial and settle the matter?

Mr. S. aims to fill that fifty-gallon tank twice during the day; and, of course, it has to be drawn right off into cans. The honey is quite thin as it comes from the hives, for it is not much more than a third capped.

load of honey. In the height of the honey season this means work almost night and day. The start for the apiary is made as early as 4 o'clock in the morning, and it is nearly midnight before the load gets home, sticky with honey; and, weary, he often sleeps on the way while the faithful team keeps plodding along.

One of Mr. Stearns' best yields was about 23 tons; and in the securing of it there is something more than a holiday exercise. It requires as much downright hard work as any other rural occupation; but when the work is done, there is the satisfaction of accomplishing large results from a very insignificant source, the little bee.

I present a photo of one of Mr. Stearns' best apiaries, close to Willow Lake. At certain seasons this is a very pretty lake,

and the cooling breeze is wafted from it through the apiary. A firmisternal, tailless, amphibious animal resorts here in great numbers in the winter. They are very musical, though somewhat monotonous. They hardly ever leave their element to perch upon hives, and are perfectly harmless. Not so, however, with the black ant. These pests were so numerous in this apiary that it had to be elevated from the ground, placed upon those benches, and the legs smeared with a mixture of corrosive sublimate. These ants will attack and destroy every bee that happens to miss the alighting-board, and even enter the hive to grasp their victims. I have never seen them so numerous in any apiary as I found them here, and I am sure that the soil so near the lake was adapted to their propagation; but Mr. Stearns has taken prompt and efficient means to get rid of them.

[As one travels through the country it is a little interesting to see how varied are the methods used by extensive bee-keepers—those that can and do produce great results when there is any thing like a honey-flow. Those methods are so different one almost wonders how this one and that one can produce honey economically, for it would seem that certainly one has a good method, and the other a very poor one. "By their fruits ye shall know them," and the same good rule applies to bee-men and the honey they harvest. It seems to be a general rule to have a small extracting-house, be it ever so humble, at each outyard; but here we have the case of a man who actually hauls his extractors—in fact, all his tools—to and from the outyards, besides bringing back the honey.]

Opinions seem to be about equally divided between a two-frame extractor and a four and six frame machine. The advocates of the first named will claim every time that they can extract just as much honey, and do it easier; while those who talk in favor of the big machines say they can not afford to fuss with the little ones. I did some extracting while in California, or at least I helped. My own opinion is that a six-frame machine is too large for one man to turn comfortably. Even a four-frame extractor is large enough. I came home with the conviction firmly rooted in my mind that these large machines ought to be run by some cheap gasoline power of a half or a third horse power in size. In the course of a month or six weeks I think we shall have something that will run these big machines, and actually save the time of a big strong man. Labor in California is rather expensive; and the cost of maintaining a little gasoline-engine during the honey season would not exceed two cents a day while being operated. Contrast this with the expense of a \$1.50 man, and figure out how much would be saved. Of course, a man can do something besides turn the extractor; but with a little power he can make his own labor go twice as far, and at the same time do the work more thoroughly.—Ed.]

THE HOFFMAN FRAME.

Criticisms and Suggestions.

BY H. H. HYDE.

I have noted with much interest the recent articles in regard to brood-frames; and while I do not set myself up as authority, yet I have in mind a frame that we have been using the last two years with entire success. We had the Root Co. make us some Hoffman frames as follows: Top-bar, extreme length, 19 inches; width, $1\frac{1}{8}$; thickness, $\frac{1}{2}$; end-bars, $\frac{5}{8}$ thick, and at the top it is spaced as usual with both edges square instead of one square and one V-edge bottom bar $\frac{3}{4} \times \frac{5}{8}$. Now the reasons for this style, or, rather, specifications. We will take the bottom-bar first. I want it $\frac{3}{4}$ wide so as to render it highly improbable that the bees will continue any comb below the bottom-bar, as they will do when it is not wide enough. I want both end and bottom bars $\frac{5}{8}$ thick, as I find that the usual thickness of $\frac{1}{2}$ is hardly rigid enough in proportion to the other parts of the frame, especially where they are intended to support wires in the frames. I want the spacers on the end-bars to have square edges, both of them, for several reasons; viz., easier manipulation, no V edges to split off in manipulation, as so many of the V edges do; and, best of all, permits the use of a top-bar 19 inches long instead of the full length of $19\frac{1}{8}$. This small difference in length makes them very easily manipulated.

I shall order the next top-bars only one inch wide, as we find that is wide enough to prevent burr-combs, and then this width gives a wider space between the brood-frames at the top, consequently freer communication from brood-nest to super. We have found that $\frac{1}{2}$ is thick enough to prevent sagging, burr-combs, etc., and by their use we do not have the brood-nest so far from the super, neither do we have so much useless wood, the space being taken up with comb.

You can experiment as much as you will, but you will always find that, where the above top-bar is used in lieu of the old "fence rails," there will be a decided improvement in the way bees enter the supers, and quite a little less amount of honey will be found in the brood-nest.

There is an objection to this top-bar; and that is, unless it was made thicker the wedge system of fastening in foundation could not be adapted to it. This might be a consideration with some; but with ourselves, where we use our machine and melted wax for fastening in the foundation, we would not turn around for the difference in time it takes, or in the quality of the work done by either method. But why use the long-top-bar frame when the so-called "improved end staples" have been adopted?

I wish to say, in all deference to Mr. Root, that, had they not placed them before the people, and announced that they were all right, there would now be very few of

them in use, and why? Because it is quite an extra cost in time and money to use them; and, besides, after two or three years' use they are a positive nuisance, for, no matter how accurately the staples have been driven in, they are continually getting driven further up; and the result is, that the edges of the top-bars pass each other, and then we have worse than no self-spacing frame. Then the bees commence and put propolis all over the staples, so that they are soon nothing but a ball of wax. The frames are much harder to get out and hold to with the cut-off top-bar frames; and, in fact, they are a nuisance generally. If I were going to buy bees, and found them on that kind of frame, I would knock off half the price on account of the frames. During the year it has been my privilege to see and talk to quite a number of the leading Texas bee-keepers, and they one and all condemned the cut-off top-bar frames. Even Mr. Root's two agents, Robert Rogers and Udo Toepperwein, severely condemn them, and, in fact, I have seen but one man in Texas (and he was from Iowa, and has since gone home) who said he really wanted them. I do not want any of these cut-off top-bar frames in mine, and you couldn't hire me to use them. It is my honest and sincere belief that, if a vote were taken from all who have tried them, the verdict would be about ten to one against them.

Mark my prediction—that, while the frame finally adopted may be very far from the one I use and have herewith described, yet it will not be a frame with cut-off top-bars.

Hutto, Texas.

[Perhaps I shall have to say to Mr. Hyde as I did to Mr. Pettit on this same subject—that he has not taken into consideration other localities with different conditions. His sphere of observation seems to be confined to Central and Southern Texas; and what he says may be true in his localities. As to Mr. Toepperwein, if he at first objected to the short top-bars, he has since changed his mind, or at all events he did not give me the impression Mr. H. does, and he is quite familiar with the conditions in Texas. It is rather unwise for even the veterans to make a prophecy as to what will and will not prevail at some future time. Even so eminently practical a bee-keeper as Mr. Heddon once said, referring to the use of slat honey-boards, that when we could throw a brick up in the air, and have it stay up, then possibly that device, the honey-board, would be a thing of the past. For nearly ten years now the slat honey-board has not been offered for sale by any of the supply-manufacturers in the United States. Many other eminent bee-keepers have made predictions that turned out a good deal in the same way. Mr. Hyde, although an excellent bee-keeper, is only just of age, if I am correct, and yet he says, "Mark my prediction." He should remember that—

There's many a slip 'twixt cup and lip.

And, again, that—

The best-laid schemes o' mice an' men
Gang aft a-gley.

Having seen, as I have, the different conditions that prevail in different portions of the United States, I do not feel that I am competent to contradict the statement of any one man for his locality, because I am well aware that, if I were in his environment, I might think just as he does; but speaking for localities in general, I may say that only in Texas, and that in only a comparatively limited area, have there been any objections to the shortened top-bar or the V edge to the Hoffman frames. Knowing that preference, we have made a small proportion of the frames for that locality with long top-bars. In fact, we are prepared to make for any locality what the bee-keepers in it seem to ask and call for.

The end-bars of our Hoffman frames are made $\frac{5}{16}$ thick; and we can make them just as well, without any additional expense, $\frac{3}{8}$ if any one prefers them so.

With regard to having one edge square, and the other with a V, I am well aware that some in Texas do not like them so; but there are others who do. If the edges are V'd properly, and left blunt, not sharp, I do not think there will be very much breaking of the end-bars as spoken of. On the other hand, if both edges are square, spacing will be destroyed; for in most localities in the United States it will be much more difficult to separate the frame. An interesting fact in this connection is that one who strenuously advocated square edges had a sample thousand of such frames made; and, after trying them on a larger scale, decided that the square edge was a mistake. He is now ordering the frames regular—one edge V'd.

As to having the top-bar shortened, some few have objected to that; but the "howl" would be much greater if we went back to the long top-bar than if we left it as it is.

As to the staples driving in, as explained—that is something I can not understand. I shall have to make another visit to see these things.—Ed.]

CALIFORNIA HONEY.

Effect of Local News Items; Where Prices are Made; Low Prices Caused by Crowding One Market; Power of Work Necessary to Organize Bee-men.

BY B. S. K. BENNETT.

For three years past, California has produced no surplus honey for Eastern shipment. The home demand could not be supplied with the small amount produced. Central California and Arizona had found ready market here at fancy prices. Local product last year brought $7\frac{1}{2}$ and even 8 cents a pound for extracted. Comb honey sold at 15 to 20 cents a pound.

Throughout the United States the prices

for both comb and extracted honey last year averaged up with the prices here, showing that the supply was much less than the demand. All markets were steady, and all lots found a ready customer.

Here in California the dawn of the new year and the new century was heralded by plenteous rains which not only gave hopes to the bee-man but to all people. "Now for a good season," was the slogan. Bee-men talked to newspaper workers of the past good seasons, big crops, and what the bees would surely do this year. The reporters got their data mixed, of course, and published stories about enormous expected yields. Eastern buyers and consumers read these stories, repeated in Eastern papers, or received the clippings from California papers, and reasoned thus: "California is to have a big crop again! Well, we'll wait and see how many cars," and then for self-protection, for fear of low prices, they said: "We'll set our figures at four and five cents a pound here for the California crop."

On good authority I learn that the large confectioners and candy-makers thus agreed. And that was why our local buyers quoted three and four cents, regretting that they could not offer more.

Then the careless newspaper man got in his deadly work, reporting 50 tons of honey from 200 colonies when bee-keepers know that it takes 1000 colonies to make 50 tons. The honey-buyers and the general public believed these lurid tales, and the buyers reasoned again: "If bees make honey like that in one locality, what will all California produce, for it is a big State?"

We bee-men know that only a tenth of the area of Southern California yields honey. The general public does not.

Now all is mixed. The honey-buyer wants the honey, and would buy the whole crop at a price he knows will not go lower. Protection! The bee-man gets scared (I've met him), and when buyers show up he is overwhelmed with offers and conflicting prices. Bee-men are at once competitors of one and another. Down go prices. Then when the bee-man gets a good offer he says: "I won't sell, for prices are going up." With the next buyer he plays the same game, sells some honey low, and refuses good offers. Protection!

Whenever California gets a good crop of honey, the small poor lots come tumbling into Los Angeles, crowding the market, and demoralizing prices. These lots may not reach two cars, yet they set a price for the whole crop of 250 carloads.

In my travels I have noticed the following county variations: In Ventura Co., 5 cents is the holding figure. In Los Angeles Co., $4\frac{1}{2}$ cents a pound rules. Inland, throughout Riverside Co., $4\frac{1}{4}$ cents is the price. Down in San Diego Co. the standard price is 4 cents.

Why is it thus? "Lack of information."

Honey-buyers left San Francisco (nearly 500 miles north) in August to buy at 5 cents,

buying several cars in Ventura Co. When they found that $4\frac{1}{2}$ cents prevailed at Los Angeles they came on to this city and learned of four-cent honey. They were disgusted, and returned to San Francisco to await settled conditions. Then they learned that they could buy cheaper by staying at home.

The world's crop this year is estimated by many good authorities as less than last year; and here we are with only half a crop in California, actually cutting prices in two. Why? "Lack of information." But with this crushing blow will the bee-keeper keep informed? Our comb honey, only 25 cars, has all gone at prices two to five cents per pound less than it would bring now!

Organizing bee-men is a big job. Simple organization would help. Setting a price would advance figures. Co-operation would steady the market. Protecting buyers against low prices would stimulate a demand. Management would compel a better product. Advertising would make new markets. An association would make one seller in place of many. The bee-man stops to think. He says to himself: "Where is the benefit?" "Will my neighbor reap the benefit too?" "Can I market my own honey?" Then he says to others: "The bee-men must run an association if we have one," or, "I won't go in if so and so do." And there is a lot more of selfish reasoning.

Now I say to the bee-men, do not stop to quibble and question. Join your association. You can not be worse off than you are now. With half a small crop still on hand, prospects for a good year ahead, with plenty of bees, three-cent honey in sight, surely you could not be worse off.

Careful management in the hands of men who have the business and mercantile interests of California at heart, who have built up their own business, who buy your honey, they are interested in seeing the crop bring a high figure, for does it not return to them in your increased trade in merchandise?

Be not afraid of the buyer. Protect him and yourself, and he can show you prices, an increased industry, a marketing of the crop before it is ready, and thus a happy united brotherhood of honey producers.

Los Angeles, Cal., Oct. 9.

[There is a great deal of truth and hard sense in this article, and our California readers will do well to give it careful consideration. While the buyer, a man who is influenced solely by the almighty dollar, and who, as you say, against the interests of the bee-keeper is anxious to depress the market, there is a lot of bee-keepers who can not take a bee-journal because they think they know it all. Something ought to be done by which the bee-keepers of California could scatter information at the right time throughout the whole State. There is no reason in the world why extracted honey in California should have sold for less than 5 cents, and it certainly ought to bring as much as that now, or more. Our own read-

ers—in fact, the readers of any bee-journal, I am sure, do not have a hand in this fool policy of rushing their product off to market at any price. It is the bee-keepers who, while saving the price of a live bee-journal that would keep them posted, actually throw away a hundred times its price through ignorance of the market.—Ed.]



LOCATION AND OVERSTOCKING.

"Here I come from Western New York to have a little chat with you regarding a location, and whether there is danger of overstocking a place with too many colonies of bees. What would you advise regarding a location?"

"If I were at liberty to choose a location, when and where I desired, and could find such a one, it would be in a place where the land sloped gently to the southeast."

"But the lay of the land would not be the main feature for a selection, would it?"

"No, by no means; but this has much to do with getting our bees ready for an early harvest. Besides the 'lay of the land,' I should want flowers as follows: some willow to stimulate early brood-rearing, with sugar maple to follow; then apple-blossoms, as an assurance of plenty of honey from then to white clover, which should be in abundance. Next I should want plenty of basswood, and that on a hillside or mountain, so as to prolong its bloom; and, lastly, where buckwheat is raised as the main crop. Of course, if asters and goldenrod could be plentiful in the late fall this would make it still better."

"But I do not wish to go far from my old home. What am I to do in such a case?"

"This shows that you are much like the majority of bee-keepers who have other ties besides the bees which fix their location, and, owing to these ties, they put up with such locations as they may have. And allow me to say that the man is to be honored who can be contented and bring about good results with only limited bee-pasturage about his home, where duty calls him to remain."

"Which of the flowers mentioned do you consider the best for the bees?"

"If I could have but one of the sources named for honey, and were at liberty to choose, I would select basswood first, clover second, and, lastly, buckwheat."

"Why select basswood?"

"Because, from all sources of information which I can gather, basswood is the greatest honey-producer in the United States for the length of time it is in bloom; and if the apiary is located at the foot of a hill or mountain which is covered with basswood-trees, the season is prolonged to such an

extent that nectar is secured from basswood for from 25 to 30 days."

"Which way would you have the hives face?"

"To the south or east, if possible, as the bees start earlier in the morning than when they face north or west; also our prevailing winds are from the north and west; and when blowing in at the entrance during spring and early summer such tend to retard brood-rearing."

"What do you think about overstocking a locality?"

"My views on overstocking may not be considered quite orthodox by some, yet I think I can give facts to prove my position. If I had a location like the first I described to you I should not fear overstocking it with from 300 to 500 colonies; but I think from 150 to 200 would be as many as an average location would support to the best advantage, while there are places I know of that 50 colonies would be as many as would give good results to their owner. When we take into consideration that bees fly, from choice, from two to four miles from home, and are often led on by receding bloom to five, six, and sometimes seven miles, this matter of overstocking is not so much to be feared as many imagine."

"But I have read that bees do not go more than one and a half miles from home; and if they should ever do so it could not be made profitable, as so much time would be consumed in flying that it would not pay."

"I know we sometimes so read; but to the first I would say that plenty of proof can be brought that such are mistaken ideas. In my earlier years in bee-keeping the Italian bee was brought into a village three miles distant in a straight line. The next spring, before there were any other Italian bees about here, I saw those bees at work on the apple-bloom in our orchard; and upon counting I found about one of the Italians to five blacks, and this with apple-bloom in profusion everywhere. It was not necessary for them to come all the three miles for nectar from apple-bloom, for there was orchard upon orchard white with bloom all about where they were kept."

"And you say those Italian bees were at least three miles from home when at work in your orchard?"

"Yes. And this is not all. In haying time, that year, I was cutting a field of red clover which was in full bloom; and on seeing bees at work on this clover I made an examination, and, to my surprise, found an average of about five Italians to two blacks at work on that clover, which was one mile from home, or four miles from those Italian bees, in a direct line. And there were fields red with clover everywhere at the time, so these bees were not compelled to come over this distance of four miles in search of food."

"Well, that does seem to do away with the mile-and-a-half idea. But how about its being unprofitable for bees to fly thus far?"

"To the southeast of my apiary the land rises gradually for about six miles, and at the end of the distance it is nearly 1000 feet higher than at the bee-yard. Unless interrupted by rain the bees follow the receding bloom of basswood till the top of the hill is reached; and I can see no slackening of work in the sections as long as the bloom is plentiful on this hill. And the bees, also, all work in this direction at this time, while during the first half of the bloom they work in all directions."

"But how about the length of time consumed in flying thus far?"

"Well, I can not tell exactly about this, but I judge it does not take nearly so long for a bee to fly five or six miles as many imagine. From what I have seen I judge a bee can fly at the rate of thirty miles or more an hour; and, if so, ten minutes would be sufficient for a covering of the trip one way, or twenty minutes for the round trip."

"But they do not seem to fly as fast as that when coming to the hives loaded."

"Of course, they do not fly as fast when nearing the hives, or when about the apiary; but when they get out and away they move very fast. I have often gone to an elevated portion of ground which the bees must pass over in going to the top of this hill, and, by lying flat on my back and placing my hands on either side of my face so as to cut off the side light, and looking steadily up for a little time, until the eyes became accustomed to the surroundings, the bees could be seen going and coming quite plainly against the sky, while the rapidity of flight seems to approach that of a rapidly moving passenger train on one of our railroads."

"Well, I am glad I came; for if what you say is true I have a fairly good location where I am, when I come to consider all the flora within four to five miles of me in all directions."



FULL SHEETS OF FOUNDATION; WHEN IT PAYS AND DOES NOT PAY TO HAVE A HONEY-EXTRACTOR.

1. Are full sheets of foundation equal to natural-built combs, for use as brood-combs for extracting?

2. Would it pay for a person who keeps 10 or 15 colonies of bees, and to whom a pound of extracted honey would be equal to a pound of comb honey, to buy an extractor? That is, would the extra amount of honey secured justify the expenditure?

3. How could I secure the greatest amount of liquid honey without having an extractor?

4. How is the Red River Valley, in North Dakota, for keeping bees? AMATEUR.

[1. I do not know that I quite understand your question. If you ask whether combs

from full sheets of foundation are better than those built *without* foundation, I would unhesitatingly say yes. If you inquire whether full sheets of foundation not built out are equal to natural-built combs, then I would say yes and no. Natural-built combs if they are true and straight—in fact, any combs—are more serviceable in the apiary than foundation. Where one is running for extracted honey he will be able to get much more honey if he has combs already drawn out than if he has to depend on sheets of foundation; but if he wishes to run for *comb* honey, and keep down swarming, then he should have either full sheets or starters of foundation.

2. If you mean that you could sell a pound of extracted at the same price as a pound of comb, then it surely would pay you to get an extractor. This question will depend largely on the market. It is usually admitted by practical men that more extracted honey than comb can be produced. Some say twice as much, others one-half more; but a conservative estimate, perhaps, would be one-third more. If the market prices are in proportion, then it would pay you to get an extractor, for the liquid honey can be obtained from weak as well as strong colonies. It is not practicable to produce comb honey except from full-sized colonies. In most localities, and especially at the present time, or within the last two years, say, the beekeeper of 15 colonies had better confine himself entirely to comb honey. Extracted honey is apt to be a drug on the market, while comb honey can scarcely be obtained at any price.

3. It is not practicable to produce liquid honey without an extractor. Do not fool away your time and money.

4. I am not able to advise you; but, speaking generally, North Dakota ranks well as a honey State.—Ed.]

HOW SWARMING STOPS IN FLORIDA AT THE COMMENCEMENT OF THE HEAVY HONEY-FLOW.

Your description of how the bees manage their swarming in Southwest Texas and in New Mexico, fits us here in Southern Florida very closely; but Mr. Robbins (p. 752) is right in saying, "The broad assertion that bees will, at the advent of the honey season, destroy cells, kill off drones, etc., needs qualification." I never knew bees to destroy cells or kill off drones at the commencement of the honey harvest; but there are few if any swarms afterward. We have a fair flow of honey, say an average of 20 to 50 lbs. of honey per colony, during December to February inclusive, then a very light flow, usually just enough to keep bees breeding heavily during March, and in April until the heavy flow commences. Practically all of our swarming occurs during the last of February and in March. A hundred miles north of here, swarming lasts longer and more persistently than it does here; and often, entirely too often, swarms issue from hives that do not contain

a single pound of honey. The use of the extractor cuts no figure in preventing swarms there.

Instead of killing off drones at the beginning of honey harvest, they keep all they have, and keep raising more all summer.

Stuart, Fla. O. O. POPPLETON.

[Yet we here in the North have for years been practically ignorant of the peculiar swarming conditions as they exist in Florida, Texas, Arizona, and California; and even at the present time many are inclined to discredit the statement made by me, even when confirmed by you men who have lived in the field for years.—ED.]

TO MOVE BEES A FEW RODS TO A SHED FOR WINTER; CAN IT BE DONE?

Would it be prudent to move bees from summer stands, a few rods, to a shed (it is open to the south), and pack them close together? These bees are in single-walled hives.

In making nuclei by the Somerford method, it tells us to cage the queen. What kind of cage is used, and where is it kept when the queen is in it? AMOS FELEY.

West Hartland, Ct.

[I would not advise putting the bees into a shed just now if they are to be moved only a few rods. You might leave them in their present location until settled cold weather comes on, and then move. Change the appearance of things as much as possible at the old location, taking away all hives and every thing else that may be familiar to the flying bees. If the weather should continue cold for three or four weeks after moving, there would be very few bees returning on the next warm day.

Any kind of queen-cage will answer for the purpose named, providing it is or can be supplied with food.—ED.]

HONEY FROM CORN; THE PROOF OF THE PUDDING.

Do bees gather honey from corn? According to Mr. Gale we might as well expect "figs from thistles" as honey from corn. In Mr. Gale's experience, "We may as well expect to get honey from ferns or mosses as from grasses, or expect a hen that is without ovaries to lay eggs, as to expect honey from a plant that has no nectaries. Bees can not gather honey from maize, because the flowers have no glands wherewith to secrete it." Now, a nectariferous glandule is one that produces nectar or honey. It has been said, that "Seeing is believing; but feeling is the naked truth." If you would determine this "corn honey" secretion for yourself, go out in the corn-field before sunrise; walk in among the stalks, and watch the bees. You will find them fairly swarming over the tops of the corn. Step up closer, and you will observe that they insert their heads well into the bell-shaped cups, and work most industriously. Now pick off some of these cups,

and strip them between the thumb and finger nail, and you will see exuding a starch-like liquid, sweet to the taste. Return to this same corn-patch an hour after the sun has shone on it, and the bees will be absent. If the bees were simply after pollen they would continue their trips throughout the day; but as they are in search of nectar they discontinue their visits as soon as the sun has evaporated the nectar from the flowers. Since the corn nectar is to be had only in the early morning, the bees naturally gather from other sources throughout the day, and, in consequence, the "corn honey" of one section will not be of that of another section, as the mid-day sources of honey will differ. Corn, more than any other plant, closes its flow of nectar early, in consequence of its flowers being all exposed on the extreme tops of the stalks, and is, therefore, more in the direct rays of the sun. Go out into a corn-field and test the matter for yourself.

Within the past month I was asked to take the honey from the apiary of Ira Flanders, of Big Trees, Cal. I found three hives with body and super filled with honey; three with a few combs just started, and twelve with not even a comb started, in the supers. These bees were all in one row, and yet there are honest bee-keepers who *will not* believe that such conditions can exist, because they do not meet with them. E. H. SCHAEFFLE.

Murphys, Cal., Sept. 8.

[Mr. Schaeffle seems to offer indisputable proof, at least for his locality. Strange that no one has before suggested testing the corn-blossoms just as we test the blossoms of white and red clover. It is too late to make a similar test in our locality; but I suggest that those of our readers who can do so try it at the proper season next summer. For the present, at least, I think we may conclude that Mr. Schaeffle is right, and that corn does, in some localities at least, produce honey; but it would be folly to assume that it does do so in all localities. Alfalfa, for example, one of the best honey-plants in the world, yields little or no nectar in the East, although it makes a fairly good fodder for cattle.—ED.]

TREATMENT OF BALLED QUEENS.

I have bought about 25 queens this year, beginning during May, having received the last ones this week. With the ordinary mailing-cage, where the bees are allowed to release the queen in from 12 to 48 hours, as the case may be, I have in one or two cases opened the hive in three days and found the queen balled. To introduce her again I put her back in the cage and make a mixture of honey and sugar, so thick that it will not run, and fasten her in the cage with it, and then try her in the hive again. By this means I have not lost one, and I have in some instances introduced this way, so the queen was not in the hive more than six hours before she was released, and I

have had better success than in any other way. I have not lost out of the 25 a single queen.

When the queen is balled, do the bees try to sting her, or do they simply smother her? I should think they would very quickly kill her if they tried to sting her.

If I remove the queen from a hive in which there are plenty of drones, would the bees save these drones until they could rear another queen? J. S. WISE.

Hazlehurst, Miss.

[Daubing the queen with syrup or honey to introduce has been practiced with more or less success for the last 20 years. The object is to get the bees to clean her off, an act which gives her the same scent as the bees to which she is being introduced; but the plan is not to be recommended in all cases; indeed, I believe it is rarely used. Sometimes the bees will attack the queen as soon as they get her well cleaned off, and there are cases on record where the queen has been attacked before she was hardly clean. It is a risky job at best to daub a queen with honey in order to get the bees to accept her.

There are some instances where it is evident a balled queen was smothered to death, and there are other instances where it is perfectly plain that she has actually been stung.

Removing a queen from a colony in which there are drones will usually have the effect of keeping the bees peaceable toward the drones, or until a laying mother is supplied or reared.—ED.]

THE PROPORTION OF SUGAR AND WATER FOR SYRUP.

Would 10 lbs. of sugar and 10 to 11 lbs. of water be reckoned as 20 lbs. of syrup for feeding bees for winter, or what amount would it be reckoned at, as the bees evaporate it some? JOSEPH COOKE.

Enderby, B. C., Sept. 28.

[The proportion you name would be all right, although those who advocate feeding syrup thin recommend 10 lbs. of water to 10 lbs. of sugar. This, when fed, would make 20 lbs. of syrup; but the bees would evaporate it down, probably, to about 13 or 14 lbs. of sealed stores. If they are fed very late, it is advisable to make the proportion two of sugar to one of water.—ED.]

FOUL BROOD NOT AFFECTING DRONE BROOD.

I noticed in GLEANINGS, page 685, the request that any one having foul brood in a frame, and also having drone brood not affected, would report. We had a case of it in my bees here. They would die in the cells while the drones would grow and crawl from their cells. MAGGIE RICH.

Mahaffey, Pa.

[But we have since had other instances reported where the drone brood was also affected.—ED.]

TRANSFERRING AND ITALIANIZING AT ONE AND THE SAME OPERATION.

I have only two colonies of bees, hybrids, which I wish to Italianize this fall. They are in hives of late pattern, containing Hoffman frames; but, owing to the small amount of foundation used, and the manner in which it was fastened in the frames, the bees did not build their combs straight, and consequently it is very difficult, if not altogether impossible, to manipulate these frames.

Now, my idea was this: When I am ready to Italianize, I shall, no doubt, in order to find the queen of said hives, have to use the method you describe on page 163 of your A B C book; i. e., remove the old hive a short distance. Place an empty hive on the old stand, putting on it an entrance-guard. Now take the frames from the old hive, and (one at a time) shake them in front of the empty hive. The queen, not being able to pass the entrance-guard, will be easily found.

Now, if I should have this hive full of comb foundation, why could I not, when the bees get nearly all inside, introduce my Italian queen? and, after so doing, would not the bees stay and build new combs in the frames of foundation?

You understand my idea is, to get frames of straight comb. I could, no doubt, find one or two frames of comb that are nearly straight, and I could place these in the new hive, and in the rest of the frames have comb foundation. HARRY GRIFFIN.

Alcona, Ill., Aug. 19.

[The plan you describe would work all right, providing you gave the bees a stimulating feed of $\frac{1}{2}$ pint of sugar syrup daily until the combs were built out and filled.—ED.]

THE VALUE OF BEE-PAPERS.

From what I can glean, Mr. G. R. Frye and myself are the only ones who have secured a good crop of honey. We owe our success to GLEANINGS and other bee-papers. We improved our scrub stock that we started with, by buying queens of different breeders; and the result is, there is a little more vigor in our bees than in our "fence corner" bee-keepers'.

River Falls, Wis. A. D. SHEPARD.

FOUL-BROOD INSPECTIONS FOR VENTURA COUNTY, CAL.; A CORRECTED STATEMENT.

On page 779 you quote the *Pacific Bee Journal* to the effect that I have found 625 cases of foul brood in Ventura Co. This is as wide of the truth as some of the estimates of the California honey crop. I have found, up to date, just 103 cases of foul brood in this county this year. I expect to find a few more, but not many. The number is as large as it is because we have had no inspector for the last year or two.

Sespe, Cal., Oct. 9. R. A. HOLLEY.

NOTES OF TRAVEL.

The 'Honey-plants of the Bee-keepers' Paradise in Texas.

BY E. R. ROOT.

Let me see. We left off visiting the Bunting brothers, near Uvalde, Texas. We will now this afternoon take a look over some of the wild country that, so far from being to all appearances a paradise for bees, is a veritable desert. The ground is hot and dry; there are no rains—at least during the honey season—to speak of. The shrubs and the trees have a dried-up, choked appearance—at least they look so to a tenderfoot who has been used to seeing the heavy growth of green trees and general shrubbery where it rains sometimes every day, and sometimes not oftener than every two weeks.

With my small pocket kodak I took a snap shot at the guajilla (pronounced wah-*heel*-ya)

the best honey-plant in the paradise, see Fig. 1. In the foreground will be seen scanty patches of grass on dry barren sand. In the background is the guajilla brush; and over at the extreme right, if I mistake not, there are two trees of the catclaw.

The former produces literally water-white honey in large quantities—mild in flavor, so much so that some would say it had absolutely no taste beyond a pure simple delightful sweet, with a certain distinctive honey taste. Some samples of it, I am told, are so white that if a drop of it and a drop of water were put side by side it would be difficult to determine which were which. But, like all honey, it varies according to the season, and somewhat according to the locality: but in the region of Uvalde I believe it is at its best. In Fig. 2 I present a small sprig, life size, of the plant itself. There are no blossoms on it, as it was then out of the season. It partakes somewhat of

the nature of the sensitive plant; for when one touches the leaves they will immediately fold. Indeed, we had great difficulty in tacking a sample up against the side of a hive to get a photo of it. Every time we touched it or drove a nail, those beautiful delicate leaves would fold up, and I had to wait quite a little before it would get over its bashfulness, unfold, and allow me to take a picture of it. The result is before you.

Another very important honey-plant or tree is the catclaw, shown in Fig. 3, Mr. D. M. Edwards, at my request, standing in front for the purpose of giving a view of its comparative size. Fig. 4 shows the leaves, twigs, and blossom, life size. Besides the bushy fuzzy blossom suggestive of the furry coat of a cat, there are certain claws or hooks, shaped very much like the claw of a common house feline, and hence the name, "cat-claw." If one tries to push through bushes of this kind he will soon conclude that he had better "back up" or remain "hooked."

The honey of the catclaw is of fine quality, and ranks with ordinary white honey; but it is hardly equal in flavor to honey from the guajilla, nor is it as white in color.

But the plant that is, perhaps, more general in its distribution over Texas, and one that is also found in Arizona, is the mesquite (pronounced *mes-keet*). Fig. 5 shows the trees as they grow, and are found, not only in Uvalde Co., but throughout other portions of

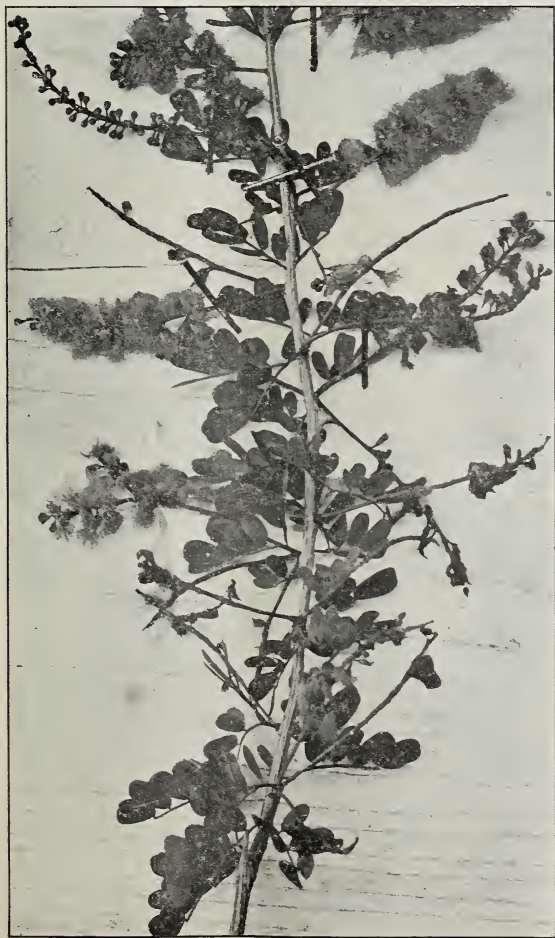


FIG. 4.—CATCLAW LEAF, TWIG, AND BLOSSOM (LIFE SIZE). Texas and in Arizona. The

leaf or branch is shown in Fig. 6, and is also life size; but there are, however, no blossoms on it, for at the time I took the picture this particular plant was not in

found it was considered to be equal to the very best, and to call it anything else would invite argument. Fig. 4 shows only the smaller trees.



FIG. 1.—GUAJILLA BRUSH, UVALDE, TEXAS.

bloom. It yields considerable honey, but most Northerners would class it as a light amber, and of medium quality. I am well aware, however, that some of our Texas

All the specimens of trees and plants I have so far presented are of medium size. There are much larger specimens of any of them. For instance, there are mesquite-



FIG. 7.—D. M. EDWARDS' APIARY.

friends regard it as something very fine; but in localities of the State where the guajilla and catchlaw grow it ranks second; but where there was neither of these last two I

trees that are as much as 2 feet in diameter; catchlaw, 18 inches; guajilla, two to three inches.

There is a great variety of other valuable

honey-plants besides those I have shown. One of the very best, and perhaps equal to the catclaw, is the Mexican persimmon; and there is, also, what is known as the wild brush, or wild china: broom-weed, with a light-amber honey; horsemint, also amber. Besides, there is a great variety of weeds and plants that produce honey and pollen under certain conditions; so, taking it all in all, the bees of this paradise have an opportunity of gathering honey from along in February or March till almost frost time.

But of all the plants the guajilla is the most certain.

The Uvalde County flora comes on in about this order: First, there is the mountain catclaw, with the Mexican persimmon. This comes on about the 20th of March; and about this time, also, swarming begins. But when the guajilla and the sage brush come in bloom, which come next, swarming stops, and cells are destroyed and drones are killed off. This statement, it will be remembered, has been contradicted; but I have had any



FIG. 2.—GUAJILLA LEAF (LIFE SIZE).



FIG. 3.—CATCLAW-TREE, D. M. EDWARDS IN FRONT.

amount of proof from various sources lately that show that this is nothing unusual in a fair season. Following the guajilla, which begins from the 15th of April, there next comes on the catclaw. This begins about the first of May. Shortly following this is the wild china, coming along about the first of June. In July there is a second crop of catclaw, and so on one honey-plant follows another, giving a continuous flow of honey. If I am correct, it is seldom necessary to feed.

In our next I propose to take our readers into Arizona, into the region of Phoenix and Tempe—another paradise for bees, a paradise for fruit-raisers, and a paradise for the rancher. All the inhabitants of that vicinity call it "God's country," and I will try to show you why it is so called.

Fig. 7 shows one of the out-yards of Mr. D. M. Edwards. Over in the distance is his extracting-house, with his solar wax-extractor and other appurtenances for working the yard. At the right of the yard will be seen the trees of the catclaw.



FIG. 5.—MESQUITE TREES, UVALDE, TEXAS.



WE are getting good reports of the young clover that is growing all over the country.

MORE proof is coming in, showing that the amount of honey in the country has been greatly exaggerated. We admit and have admitted all along that there is more extracted in the East, but not nearly the

amount that has been stated in the daily press. Several write that Mr. Clayton, on page 828, overestimated the crop.

It is a real pleasure to me to say a good word for the *Bee-keepers' Review*. That journal shows on the part of its editor a good deal of time and thought. A strong feature of it is the editorial department. Mr. Hutchinson is a good reviewer; and if any man can pick up valuable little kinks at conventions or when traveling, or can glean from the current bee literature of the day, it is W. Z. Hutchinson, of Flint, Mich.



FIG. 6.—MESQUITE LEAF AND BRANCH (LIFE SIZE).

THE stenographic report of the 32d annual convention of the National Bee-keepers' Association, held in Buffalo last September, is now being published in the *American Bee Journal*. As nearly as one can judge, it is not only verbatim but accurate as well.

NEW ADDITIONS AT THE HOME OF THE BEE-KEEPERS' REVIEW.

It is just 23 years this month since GLEANINGS offered its congratulations to Mr. and Mrs. Hutchinson on the advent to their home of twin girls. Later on we showed a picture of the Hutchinson apiary with those same twins in a wheelbarrow, wheeled by their proud dad. At various times since, we have made mention of these girls—once when one of them appeared in a prize picture, holding a swarm of bees; at another time, when the other twin appeared as Mr. Hutchinson's compositior. Well, what is up now? I have just received a note from Bro. H., who is just as proud as he can be over his two new boys—not baby twins, but twins-in-law—who married those first twins. You see a double wedding has just taken place. Mr. H. says of the boys, "They are bright, honest, wholesome fellows, of whom I can feel proud." We all know what the girls are, because—because, you know, they are the "better halves." We offer our congratulations, not only to the parents but to the quartette.

CELLAR V. OUTDOOR WINTERING AT MEDINA.

We have about 100 colonies at our basswood yard. Most of them are in single-walled hives. Our general practice has been to winter outdoors; but as we have now between 700 and 800 colonies, all told, we found ourselves short of chaff hives. Then the question, in view of the splendid results we secured in our cellar under the machine-shop this past winter, naturally arose as to whether we should put our surplus of colonies in new double-walled hives or winter in the cellar. At our home yard we expect to put all our extra colonies (some 200) under the machine-shop, in the place where the consumption of stores was so very light, and the number of dead bees on the floor so insignificantly small. Now, then, for the basswood yard would it be cheaper for the Root Co. to make a lot of new chaff hives, nail and paint them, and transfer the colonies into them, or would we save money by building a modern bee-cellar and putting all of the single-walled hives in this cellar? A little calculation showed that for the Root Co., at least, it would be just as cheap to build a cellar.

We are now digging one along the lines described by Mr. T. M. Bingham, on p. 174 for last year. It will be remembered that this cellar was wholly underground, access to it being gained through the building, down through the floor.

For some years we have had over on our fairground a display-building, but which

during the last two or three fairs has not been used. We are about to move this down to the apiary, and under it put a modern cellar, embodying the Bingham plan, about 7 feet deep. This will make a repository 12×20 feet, and 7 feet deep. There will be no windows—no two feet of brick walls above ground, as is the case with the ordinary house basement under a private dwelling. While it will be larger than is needed to take 100 colonies, yet we are going on the theory that a large room, with plenty of cubic air capacity, is much better than a small stuffy room just large enough to accommodate a given number of hives. An electric railway, nearly completed, runs directly by this basswood yard, so it will put us in easy connection so that we can watch developments.

We propose to determine, if possible, whether we can duplicate the results of last winter; and whether or not in our comparatively warm climate the indoor method can be rendered more economical than the outdoor plan.

I should, perhaps, have explained that one reason for having the cellar at the out-yard is because the hives have been robbed during the winter on their summer stands. The new cellar will be thief-proof.

OFFICERS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION; SHALL NOMINATIONS BE MADE IN ADVANCE? AND IF SO, HOW?

THIS was the question that was discussed by the Board of Directors at Buffalo. It was finally voted that Mr. Hutchinson prepare a short editorial, submit it to some of the Directors, receive corrections, if any, and place it before the public. This he has done in the last issue of the *Bee-keepers' Review*. He writes:

Nominations in advance of the election of a General Manager, and the Directors of the National Bee-keepers' Association, would be very desirable. As it is now, when a member receives a voting-blank, he does not know for whom any other member will vote. In his desperation, he votes for the man whose term of office is about to expire. As a result, each officer succeeds himself, year after year. Should it ever become desirable to elect a new man, it would be well-nigh impossible with the present system. This question was discussed by the Directors present at Buffalo, but they were unable to devise a plan that seemed wholly satisfactory, and it was finally decided to have the matter taken up in the bee journals for discussion. Suggestions from the readers of the *Review* will be welcomed.

The foregoing was sent to E. R. Root, one of the Directors, for his criticisms, or suggestions. He considered it brief and to the point, and passed it on to Bro. Abbott, who is chairman of the Board of Directors. He penciled on the back of the sheet the following: "While it is desirable to keep the same parties in office as long as they attend to business, and give satisfaction, yet it is important not to have too many Directors in one locality, and to place in office men who will attend the annual meeting as often as possible."

The suggestion that we put in Directors and a General Manager who will attend the annual conventions as often as possible is worthy of consideration. At the Buffalo convention, six of the Directors were present (one more would have given us a quorum) and we did more business than could have been transacted in weeks or months of correspondence. There is nothing like a face-to-face discussion of a knotty question. Other things being equal, we should give our preference to those men who are usually present at the annual convention.

Perhaps I might suggest in this connection, that the Board, in discussing this matter, did not have in mind any director or officer, now holding position; but the facts are, the present set of officers, for the most part, have held their positions uninterruptedly for a number of years, with almost no change. Is this desirable?

Mr. O. O. Poppleton, of Florida, on seeing this editorial, writes, stating that there is not a single Director in the whole South; and, as one will see by consulting the head of this editorial department, there are two or three cases where there are two Directors in one State. For example, there are two in Ohio, two in New York, and two in California. This is hardly a fair representation. A. I. Root, with whom I have been talking, and who is not so much interested in bees as he formerly was, requests that his name be not used again at the next general election; and as for myself, I desire that some one else be put in my place on the Board of Directors, for I feel that my interest in the organization is sufficiently strong to work just as hard for it out of the Board as in it.* In making this suggestion I do not do so with the idea that some other Director in some other State will follow suit, for that would be disastrous. The fact is, all the men who represent the Board are most vitally interested in the success of the Association. The fact that the organization has been successful in every case brought before the courts; that it has prosecuted adulterators; that it has been the means of helping secure new laws; that it now has a membership of nearly 1000; that with its hundreds of dollars in the treasury it is a tremendous moral force—all this and more goes to show that the N. B. K. A. has not lacked for good men to look after its interests; but it should be borne in mind that there are *other* good men who are *not represented* in any official capacity.

CARBOLINEUM AS A WOOD-PRESERVATIVE.

SINCE I called for information concerning this new preservative, I have received a number of circulars and letters. It appears from these that railroad companies have for years been using this substance to preserve wood that is either buried in the earth or exposed to especially trying climatic conditions. It is a preparation of German manufacture, probably having creosote for a basis. Unlike ordinary paint, this preservative, when applied to the surface of the wood, *strikes clear through it*.

Mr. James L. Montgomery, of Americus, Ga., says that "it penetrates the fiber and causes a chemical change which affects the wood, as tanning-fluids affect hides. . . I have a sample, with which I can paint one

* Perhaps some one may feel that I am sore, or am not satisfied with the work done. Nothing could be further from the fact. I love the National Bee-keepers' Association more than any one man in it; but in order to get a larger and more equally distributed representation, I desire to make room for some Southern man—that's all.

coat on one side of a hive-body (Root's white pine), and in 24 hours a splinter or shaving from the opposite side will taste of the preparation." He further says that it costs less than half the price of good paint. From some of the circulars received it would appear that some of the preservatives in the market bearing that name are mere imitations, and do not in any sense preserve the wood like the original article from Germany.

In one circular I find this: "The effects of carbolineum are partly chemical and partly mechanical. The mechanical effects are the following: By its specific weight, 1.14, it enters easily, expelling the water contained in the pores of the wood, and does not allow any water to circulate in the capillary tubes of the material. Then the fatty matter of the oil protects the wood in a direct way against rain, water, and other atmospheric influences. . . . Among the chemical influences of carbolineum, its antiseptic properties are the most important. Its high contents of specific properties against putrefaction and coagulation of present albuminous parts, operate to prevent them from producing and continuing decay. . . . As an insecticide, it keeps afar all little gnawing and boring enemies of the surface." This last statement lets out the fact that possibly the new material would not be adapted to the use of bee-keepers. If a hive preserved in it is obnoxious to insects, why would it not be distasteful to bees? But however that may be, there seem to be testimonials from railroad companies to the effect that railroad ties soaked in carbolineum will last three times as long as those not so treated.

Those who desire to secure circulars can write to the following named: C. A. Manufacturing Co., Austin, Texas; Fisher, Thorson & Co., Portland, Oregon; Carbolineum Wood-Preserving Co., 13-21 Park Row, New York, N. Y.

It appears that it can be used on bottom-boards. In regard to that use I have two letters that will speak for themselves. Mr. J. W. Jackson writes:

Some here use carbolineum on sills, sleepers, and all timbers of buildings that go near the ground. I use it on hive-stands and fence-posts; but so far I have not used it on the hives themselves, because it turns the wood a dark color—carbonizes it to some extent—and I feared the dark color would absorb heat and cause the bees to suffer. It will blister tender skin, but not the inside of the hands of a working person; and it is usually applied with a paint-brush.

J. W. JACKSON.

Mr. O. O. Poppleton, one whose statements certainly can be relied on, writes:

Friend Root:—Carbolineum has been very largely used in this country, especially by the railroads, for the preservation of bridge timbers and foundations of houses from decay and white ants. I have painted the bottoms of my hives with it for some years past for the above purposes.

There are two strong objections to its general use as paint for hives—its strong odor of creosote, and its dark (almost black) color. This last almost or quite prevents its being used on hives allowed to stand in the sun. It is cheap and durable. It can be easily obtained of the trade in New York, or in many of our stores here in Florida.

O. O. POPPLETON.

Palm Beach, Fla., Sept. 23.



In all thy ways acknowledge him, and he shall direct thy paths.—PROV. 3:6.

But the path of the just is as the shining light, that shineth more and more unto the perfect day.—PROV. 4:18.

I am going to talk about *paths*, and may not, at least until toward the close, have very much to say about the spiritual sense of the two texts above. For a year past I have been very much interested in "foot-paths" and "wheel-paths," and, of course, the whole matter of "good roads," the subject that is at present taking the attention of our whole nation, comes in more or less. One of the pleasant problems to solve, in connection with our present location here in the woods, is the matter of getting access to and with the outer world. The nearest highway is a good quarter mile through woods, fields, and over hills. This is toward the east. There is another on the north, half a mile away, and on the west, perhaps three-fourths of a mile. All of these points are reached by foot-paths. Some of these paths are over old lumber-roads, as I have already explained. Another part is of my own making and planning. James Heddon once remarked in one of our bee conventions, that humanity, for some unaccountable reason, always follow *crooked* paths. Who ever saw a foot-path across a field on a straight line, or anywhere near straight? In deciding where to have a path located over to our nearest neighbor (and to the nearest highway), I first stretched a strong slender cord where I wanted people to walk. It would, of course, have been desirable to have the path along the line between two owners; but this would have made it much longer, besides going over bad hills. With my neighbor's consent I went right through one of the best fields diagonally. First, I worked for the shortest cut; secondly, for an even grade. As we are, perhaps, 40 higher, a gradual down grade was desirable; but to get this there had to be more or less winding around rising ground. Please notice, we can not choose a *straight* line, nor can we go to unreasonable extremes in winding about in order to have no ups and downs. Our steam (and especially electric) railways have made a real science of this matter. I am sure it would save a great amount of time and useless fatigue if *we* around *our* homes would make more of a science of the matter. Children in going to school waste hours every day, and strength that might well be put to a better use, because of the lack of a short easy path to and from school. Why, my "scientific" foot and wheel paths right through the woods are already appropriated by the schoolchildren; and if you could see them these October afternoons as they return from school through our woods on "Clematis Avenue," singing as they come

along in their neat school clothing, you would surely be converted to the importance of my new hobby — *better foot-paths* everywhere that many people want to go.

An excuse for the unscientific and absurd paths has been given, that somebody first walked through a field with no thought that it would ever become a "beaten path," and then everybody "just followed" his crooked footsteps. My friend, is it not just possible that *you, to-day*, are going to "break a path" for *somebody*? Read our two texts and then tell me if it is not important that you take some pains to have the great "Judge of all the earth" direct and assist you in this work of path-making?

But I have not yet done with the paths around "Our Homes." Will you not go this minute to see if the path to the well, to the spring, to the barn, to the pigpen, to the out-buildings, to the clothes-line, and everywhere else that you and the children go (especially the women folks and girls), is just the best it can be? I almost forgot the woodpile; but I hope you have by this time got some arrangement so the firewood is piled by the men either *under* the stove, as I described on page 833, or somewhere indoors in the dry, so no woman ever has to go outdoors for wood.

Now for the paths. If you can, by a *day's work*, save just *one foot* of going up and down, it will be a day's work well invested. If some obstacle stands in the way of a shorter cut by just *one yard*, use quite a good deal of time and some money to remove it. Read this Home Paper to your wife (that is, if she hasn't read it first) and ask her if I am not exactly right. We are two miles from the store and postoffice) and my short cuts are appreciated here, I tell you. Of course, I am doing work on land that is not my own; and some of the paths I have spent money on are liable to be plowed up in the spring; but I have had the fun of making them, and have demonstrated their value, so I expect to get help in my work in due time.

Every sort of obstruction should be got out of the patch. In riding a wheel, a round stone the size of a marble often gives the rider a disagreeable wrench, and it has seemed to me that every such round stone or piece of root takes a malicious pleasure in rolling into the middle of the path, and bothering you every time you happen to pass, especially when you are going up a grade, carrying a load. At such a time you make a crookeder course, especially when you slow up when almost at the very summit; and then to have a pebble or root throw you off just when you have exerted your utmost strength to keep *on* — why, it almost makes bad words come into your thoughts, even if you have tried ever so hard to keep them out. Now, whenever I go that way again on foot I make it my business to pick up all such objects and hurl them far away. If you just kick them to one side you are sure to be bothered by that very same crooked stick again. I have some-

times wondered if they "wiggle" back again as soon as you are out of sight. Take a look at the tired horses on almost any highway, and notice the strength that is wasted in making the heavy wheels grind and crunch over round stones scattered all along the road. The next team pulls laboriously over the same stones. They are rolled about in every direction; but the "pesky" things *never* roll out of the road into the ditch, or at least so it seems. I once saw a man picking up these stones, on a stony sidehill in front of his home. He said it was a part of his religion to remove the *cause* of bad words from traveling teamsters. Shall we not all make it a part of *our* religion to remove all stumbling-blocks from the paths of tired struggling humanity? Mrs. Root is in full sympathy with me in this work, and I sometimes smile to see *her* stop to clear the path when I thought we were *both* too tired for such *missionary* work.

When a hill is round-top, like the half of a sphere, it is folly to think of going over it, either with path or wagon-road, for it is no further around it, on level ground, than climbing over the top. In laying out roads, it is desirable to follow division-lines between different owners, and for this reason roads are often carried over instead of around hills. But few hills, however, are round, like the half of an apple, and, taking hills as we find them, how far will it be advisable to go around to save climbing over the top? This is one of the problems that are hard to settle. With a wheel I have often thought I could save time and strength by going *two* miles over a good level road rather than go *one* mile over a hilly and stony road; and it is usually easier to get a *smooth* hard road, on level ground, than on hilly or uneven ground.

Going around a valley or hollow is much like going around a hill. In cutting my wheel-path, a very deep ravine lay right in my course. To go around on a level was too far, so I made a curve that was *lowest* where it was furthest from the course I desired to go; and this arrangement makes a very pretty curve, first gradually down, then gradually up again, and the spot of ground we go around is my "ravine garden," where every thing grows so luxuriantly. A few nasturtiums and balsams along the path give a very pretty effect. A path that is easy for the wheel—that is, hard and smooth—and the ups and downs gradual, I have found easiest for foot travel. One who has had much poor health learns to appreciate every thing that saves strength; and I have sometimes thought there was, perhaps, a kind providence in giving me many periods in life when I was really obliged to make it a study how best to ease the burdens I felt compelled to bear. I have chosen the lightest tools for my use that would do the work; the lightest clothing that would keep me warm enough, and, finally, the very easiest paths and short cuts to and from my daily toil. May the Lord be prais-

ed that here in this Traverse region I am not obliged to use so much of this kind of economy, for now I often climb great hills, "just for the fun of it." In fact, the very ground I am clearing off to-day for peaches and potatoes is right over large hills.

I believe I have always had a fondness for paths, especially paths through the woods. Just now the pathways through our woods are all carpeted with soft leaves of the most brilliant hues; and the colors of the beeches and maples overhead, contrasting with the rich green of the hemlocks, make a picture that might call forth words of praise from any one. This view is all the time around "our cabin in the woods;" and the red squirrels and chipmunks, since they have found we are friendly, make an agreeable second to it all by coming clear up on our front doorstep and looking at us inquiringly with their beautiful bright eyes. Yes, and if one *looks* and *listens* he may *hear* and *see*, also, birds of many colors. Why, who is there who doesn't feel a thrill, when pleasure or business calls him into a path through the woods, during these October or November days?

Every foot-path is more or less for the people; it is more or less for the great wide world to travel over, and, therefore, he who makes a better path, or even removes the stone or root that has tripped or caused many people to stumble has done missionary work. "Path-making" is an unselfish work. It not only saves the strength of exhausted, tired, suffering humanity, but it often saves the utterance of oaths and curses. I do not think I ever enjoyed any work of my life more than studying up, and making to my notion, a good foot-path where one is needed. When I first went down through where my ravine garden is now, a year ago, it took me a long time to get through the bushes and climb over rotten logs piled up over each other; and when I got across I was pretty well tired out. Now I go around the curve on my wheel in little more than a second. Since the neighbors have found it is a pleasant and agreeable "short cut," it is traveled so much that the ground keeps hard and smooth, and all the weeds are kept down. This is one of the pleasant things about path-making. After you once get it *started right*, the busy feet of the great wide world keep it in good repair.

Dear friends, is it not so with every thing good and pure and lovely? The person who starts honest and wholesome amusement in any neighborhood, in the place of intemperance and saloon-visiting, is a path-maker, and so with a thousand other good things. Path-making reminds me of that grand old text, "He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins."

I have no hesitation in saying your ABC is the best bee-book ever published, and up to date in every way.

W. P. MEADOWS.
Syston (near Leicester), England.



HIGH-PRESSURE GARDENING IN THE TRAV- ERSE REGION OF NORTHERN MICHIGAN.

I have told you already of the fertile soil where I cleared up my garden-patch in the woods. Well, at this date, Oct. 17th, every thing is still growing unharmed by frost, although we have had several nights when the thermometer went below freezing. I am told this is the rule in this locality with so much water around us, and, in fact, I have seen it during two falls. We have had snow and ice, but no frost; and our beans, tomatoes, and all tender things, are still unharmed. In Ohio I have learned to expect frost when the temperature is 50 or below at sundown—that is, if the night is clear and bright starlight; but here it is 40, or still lower, night after night, at sundown, with the brightest starlight I ever saw, and no sign of such frosts as we have in Ohio.

You may wonder what "gardening" I have been doing here in October. To be exact, it has been rather getting ready for gardening next year, or, perhaps we had better say, farming. Our 40 acres is not quite all woods. About 22 years ago four or five acres were cleared and brought under cultivation; but since then nothing has been done with any part of the 40 unless it was to pasture it to some extent. The cleared part was soon covered with a dense and heavy sod of June grass, and, later, sumac has proceeded to make a most luxuriant growth, pushing out further and further every season. Well, the "high pressure" work we have been doing this fall is cutting off the sumac with brush-scythes, and then turning the sod with a strong team and a heavy plow. Besides the sumac, little maples (and, worst of all, elms) we found scattered here and there. It looked to me almost out of the question to get rid of elms 6 to 8 inches through, so as to do a good job of plowing; but we have got it done. They were chopped off about 4 ft. from the ground, the big roots were grubbed and chopped off, and then with a chain hitched to the top of the stump, by alternate pulling and more cutting of roots we got them out. We are getting the land ready to sow rye, at the rate of two bushels to the acre. This rye is to be turned under next June when in bloom, and potatoes planted on the "Bal-lasch" plan.

You may be surprised when I tell you there are no land-rollers around here. The farmers say they have no use for them, for there are never any lumps to be crushed. The harrows used here, especially for new land, are the spring-tooth, and it was one of my "happy surprises" to see what just "once going over" did in the way of making a nice seed-bed. The ground was not only comparatively level, but it was fine and soft, without a lump of any kind—

nothing to be crushed, nothing to be made finer. Mr. Hilbert uses a "float" to make the ground smooth and level for his strawberries; but farmers rarely use any thing of the kind here for their grain crops. Now, this ground is not sand, mind you. It is a sort of loam, and the new virgin soil (like that in our garden) is a sort of black-loamy "woods dirt." Of course, the old experienced farmers around here are, as a rule, prepared to teach me; but I have taught them a few things, and compelled them to own up. To get a team and man to do this heavy work of breaking up new ground I had to pay \$3.50 per day, and it took another man at \$1.50 to cut the brush, burn up the trash, etc. Now, when you are paying \$5.00 a day, or 50 cents an hour, it pays to avoid false moves. It is expensive business turning a 30-hundred team clear around 20 or 30 times a day when it isn't really necessary; yet few farmers, so far as I can learn, seem to be aware of this. On this account I urged for long straight furrows. But several other things must be taken into account. First, it is always desirable to turn a furrow down hill unless the ground is quite level; and when there are roots and trash to make the plowing extremely difficult, then it is most important that no furrow be turned the least bit up hill. Our land is quite uneven, much of it made up of quite steep hills. Now, there are several ways of avoiding the necessity of turning any furrow up hill. Of course, there are sidehill plows; but these are complicated, not as strong, and they do not, as a rule, do as good work as the best common plows. Now, then, how can we manage so as to plow hilly land with a common plow, and not turn any furrows very much up hill? First, if the hill admits we can commence at the bottom and plow around it. Second, if there is a ravine between two hills we can run up one side and down the other. This works all right until you get part way up the hill on each side. How shall you cross over from one side to the other? We might go "empty;" but if you are going to waste your own time and the strength of the team in drawing an empty plow, why not plow your sidehill by turning a furrow only one way, and going back "empty"? I do not like this way of plowing, even if Mr. Terry, in the "Potato-book," does give it a sort of sanction. You can cross over from one side of the ravine to the other by turning around on a curve when crossing the bottom of the ravine, so that your strip of plowed ground will be oval-shaped, or at least oval, or egg-shaped, across the ends. Third, if you have level land, or nearly level, turn one furrow up at the bottom of the hill, and back-furrow against it, curving the ends egg-shape as before, so that you turn a furrow down hill, even when going across the ends. If the top of the hill has some level land on it, or nearly level, do the same with the top of the hill and one of the sides. (In my case the opposite side of the hill belongs to my neighbor.) In this case

you must stake out your ground and plow first along the outside, turning all your furrows out. Start it oval, or egg-shaped, as the lay of the land may require. Irregular-shaped hills may require a combination of all — first, second, and third; but whatever you do, never plan so as to turn the team around if it can be avoided. Imagine a big team fussing with little triangles or squares to finish up. One such may be necessary; but some plowmen will have a number of them in plowing five or ten acres in hilly or uneven land.

By the way, do any of our readers know of a book that tells all about plowing — especially plowing on uneven ground, and clearing-up of uneven woodland? Our land here is particularly suited to fruit-trees, especially peaches; and the peaches seem to be particularly suited to the hills—yes, the very tall and steep hills. Now, if you turn a furrow down hill, year after year, where will the trees be, especially those near the top? In our "Potato-book" Terry directs that the plowing be so managed that the fields be not thrown out of shape by repeated plowing, and this is all right for level ground. How about the hills?

How many farmers plow so as to have a stout team do some useful work when going to and from the fields, morning, noon, and night? If every one of them were obliged to pay 35 cents (or more) for man and team every hour he had them, perhaps he would do a little more figuring. I am going to try five or six acres of potatoes on this new land, hiring every bit of the work, and I will try to let you know how it turns out. I do not mean to find fault with my helpers, and so far they are skillful, capable men; but I really wish they had a little more enthusiasm in pushing the work along. Something seems all the while coming along to make them want "a day off." After dinner to-day it rained; but by the middle of the afternoon the weather was beautiful, but not one of them "showed up." Of course, I hire men and teams by the day. I could get my clearing and plowing done by the acre; but then I should get only an ordinary job. If I am going to show people some "high-pressure" work I want the stones picked off, and every thing else that will hinder a first-class job of plowing. Then I want it "first class" all the way through. If I don't get my money back the first year, I have faith to believe I shall later.

Very little manure is used in this region. They say the land, especially the new land, doesn't need it. After the new land is once made clean it is very easy to work and keep out the weeds.

To make cows pay, use Sharples Cream Separators. Book "Business Dairying" & cat. 288 free. W. Chester, Pa.

WANTED.—A man with a small family, who has had some practical knowledge of bee-keeping, to work in apiary and on small fruit-farm.

A. E. WOODWARD, Grooms, Saratoga Co., N. Y.



PLAIN SECTIONS 25 CENTS PER 1000 CHEAPER.

We have decided, for the coming year, to make the price of plain sections 25 cents per 1000 less than the beeway sections. This applies to the Danzenbaker, 4x5x1 $\frac{3}{8}$, the Ideal 3 $\frac{3}{4}$ x5x1 $\frac{1}{2}$, and the 4 $\frac{1}{2}$ x3 $\frac{1}{4}$ x1 $\frac{1}{8}$, 1 $\frac{1}{2}$, or 1 $\frac{3}{8}$. All other widths to remain at last year's prices. This reduction applies to No. 2 as well as No. 1 grade.

HONEY-CANS HIGHER.

We have just received prices on cans from the trust, and find we shall have to mark up our list prices on $\frac{1}{2}$, 1, and 5 gallon cans for the coming season; $\frac{1}{2}$ and 1 gallon cans will be \$1.00 per 100 higher, or 10c per box; and 5-gallon cans, 2 in a box, will be 5 cents per box higher; one in a box, about 3 cents per box higher.

HONEY-PACKAGES.

We are now well supplied with No. 25 jars, both in barrels and boxes, and we hereby renew the special offer made a month ago, to supply these and the No. 100 in boxes at 50 cts. per gross more than the price in barrels. These jars are becoming more and more popular for honey, because they are so valuable as a fruit-jar after the honey is used up. With our present stock we can ship promptly large or small lots as may be needed.

A BARGAIN IN MACHINERY.

Any one in want of good second-hand machinery for hive-making can secure a bargain at Knoxville, Iowa. A good wood-frame rip-table and an 18-inch Gem planer can be had for \$60; planer has been used but little, and is a bargain alone at this price. A 10 H. P. boiler and engine, with about about 25 feet of line shafting, pulleys, hangers, etc., can be had for \$165; all together for \$220. We shall be pleased to hear from any one interested. The owner has made other plans, and must move the machinery promptly, as it is in the way; hence the very low offer. If you wish further particulars regarding the outfit, write to J. W. Bittenbender, at Knoxville, Iowa, who will cheerfully give you what information he can.

HONEY MARKET.

We are now well supplied with both comb and extracted honey, and prepared to make prompt shipment. We shall be pleased to hear from those in need of honey, either comb or extracted. For comb we are getting from retailers 17c for fancy 16 for No. 1 white; 15 for fancy amber, and 14 for No. 1; one cent per pound less in large lots. We have two or three good-sized lots of very nicely flavored white honey in well-filled plain sections which is somewhat travel-stained, and not very carefully graded. We offer these lots at No. 1 white price, although there is quite a proportion of fancy in them. We have just received a car of comb honey from Inyo Co., Cal. This contains over 1400 cases of fancy and No. 1. Inquiries solicited.

CONVENTION NOTICE.

THE COLORADO ANNUAL MEETING.

The place? Denver.
The dates? November 18th, 19th, and 20th.
The papers? By successful bee-keepers.
The discussions? By men and women who know something.
The stereopticon lectures? By E. R. Root and Prof. C. P. Gillette.
The exhibition? Of the best and sweetest and whitest (and yellowest) honey in the United States; and the sharpest vinegar.
The premiums? Valuable enough and varied enough to appeal to every competent bee-keeper.
Interested? Write for a premium list to box 432, Denver, Colorado. D. W. WORKING, Sec'y.

FOR SALE.—Two cars comb and extracted alfalfa clover honey. VOGELER SEED & PRODUCE CO., Salt Lake City, Utah.



Red Clover Queens -FOR- 1902

Warranted Purely Mated.
The Long-Tongue Variety.

How to get One for Only 30 cts.

We have arranged with the queen-breeder who furnished Long-Tongue Red Clover Queens for us during the past season, to fill our orders next season. Although fully 95 percent of the untested queens he sent out were purely mated, next season all he mails for us will be **warranted** purely mated.

We want every one of the readers of Gleanings in Bee-Culture, who is not now a reader of the old weekly American Bee Journal, to have one of these Superior Red Clover Queens. We have received most excellent reports from the Queens we supplied during the past season. And next year our breeder says he expects to be able to send out even better Queens, if that is possible. He is one of the very oldest and best queen-breeders. His bees average quite a good deal the longest tongues of any yet measured. The Breeder he will use is direct from Italy, having imported her himself. Her worker-bees are large, of beautiful color, very gentle, scarcely requiring veil or smoker.

Orders for these fine, "long-reach" **warranted** Queens will be filled in rotation—"first come, first served"—beginning as early in June, 1902, as possible. It is expected that orders can be filled quite promptly (even better than the past season), as a much larger number of queen-rearing nuclei will be run. (But never remove the old queen from the colony until you receive the new queen, no matter from whom you order).

In order that all who are not now readers of the American Bee Journal can have one of these fine Queens, we will make the price **only 30 cents** each, when taken in connection with a year's subscription. That is, send us \$1.30 (if you are a **NEW** subscriber), and we will book your order for a **Warranted Queen**, and enter your name on our list of subscribers and send you the **Bee Journal every week** from the time we receive your name and \$1.30 **until the end of next year (1902)**. So the sooner you send in your order the more copies of the Bee Journal you will receive. If you have not seen the weekly American Bee Journal, send for a free sample copy. Address,

GEORGE W. YORK & CO.

144 & 146 Erie Street, CHICAGO, ILL.



We are headquarters in Chicago for **ROOT'S BEE-KEEPERS' SUPPLIES AT ROOT'S PRICES.**

Catalog Free....